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File: USPT

Jun 19, 2001

US-PAT-NO: 6248529DOCUMENT-IDENTIFIER: US 6248529 B1

TITLE: Method of chemically assembling nano-scale devices

DATE-ISSUED: June 19, 2001

INVENTOR-INFORMATION:

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ASSIGNEE-INFORMATION:

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APPL-NO: 09/ 315750 [PALM]

DATE FILED: May 20, 1999

PARENT-CASE:

The present application claims the benefit of U.S. Provisional Patent applications serial Nos. 60/086,163, filed May 20, 1998, and 60/095,096, filed Aug. 3, 1998.

INT-CL: [07] C12 Q 1/68, C12 P 19/34, C12 N 11/00, C12 N 1/12, G01 N 33/543US-CL-ISSUED: 435/6; 435/6, 435/91.1, 435/91.2, 435/174, 435/183, 435/283.1,
436/418, 436/525, 536/23.1, 536/24.3, 536/24.31, 536/24.32, 536/24.33US-CL-CURRENT: 435/6; 435/174, 435/183, 435/283.1, 435/91.1, 435/91.2, 436/518,
436/525, 536/23.1, 536/24.3, 536/24.31, 536/24.32, 536/24.33FIELD OF SEARCH: 435/6, 435/91.1, 435/91.2, 435/174, 435/183, 435/283.1, 435/285.1,
435/285.2, 436/518, 436/525, 536/23.1, 536/24.3, 536/24.31, 536/24.32, 536/24.33

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

 Search Selected Search ALL

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4522932</u>	June 1985	Mitchell, III	
<u>4728591</u>	March 1988	Clark et al.	
<u>4802951</u>	February 1989	Clark et al.	
<u>5242877</u>	September 1993	Dobson et al.	
<u>5258627</u>	November 1993	Turin	
<u>5389401</u>	February 1995	Gordon	
<u>5536858</u>	July 1996	Lalonde et al.	
<u>5561071</u>	October 1996	Hollenberg et al.	
<u>5578248</u>	November 1996	Hattori et al.	
<u>5593839</u>	January 1997	Hubbell et al.	
<u>5632957</u>	May 1997	Heller et al.	
<u>5733729</u>	March 1998	Lipshutz et al.	
<u>5736257</u>	April 1998	Conrad et al.	
<u>6051380</u>	April 2000	Sosnowski et al.	435/6

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
WO 98/53841	December 1998	WO	
WO 99/04440	January 1999	WO	

OTHER PUBLICATIONS

Smith et al., "Quadruplex Structure of Oxytricha Telomeric DNA Oligonucleotides," Nature, 356:164-168 (1992).

ART-UNIT: 166

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ABSTRACT:

The present invention provides nano-scale devices, including electronic circuits, using DNA molecules as a support structure. DNA binding proteins are used to mask regions of the DNA as a material, such as a metal is coated onto the DNA. Included in the invention are DNA based transistors, capacitors, inductors and diodes. The present invention also provides methods of making integrated circuits using DNA molecules as a support structure. Methods are also included for making DNA based transistors, capacitors, inductors and diodes.

32 Claims, 4 Drawing figures